

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : JAPAN RADIO CO LTD

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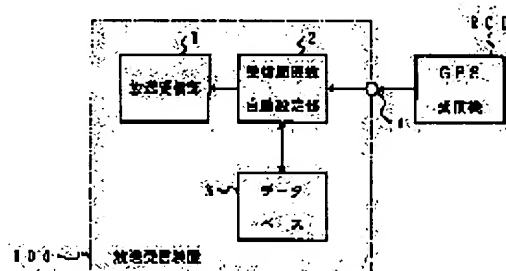
(72)Inventor : INADA TAKAO

## (54) BROADCAST RECEIVER

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To preset a broadcast frequency in a current broadcast area automatically even when a reception frequency differs depending on movement by providing a database storing each receivable broadcast frequency at each broadcast area and setting automatically a receivable broadcast frequency based on current position information.

**SOLUTION:** A database 3 stores broadcast frequencies of broadcast programs receivable in each area represented by the longitude and the latitude. A reception frequency automatic setting section 2 receives longitude and latitude information denoting a current position received from a GPS receiver 200 at all times to retrieve a broadcast frequency of a broadcast program selected by a broadcast reception section 1 from the database 3 and sets the retrieved frequency to the broadcast reception section 1. Thus, even when the receiver moves from one broadcast area to other broadcast area during driving of a vehicle, the broadcast frequency in a current broadcast area is preset automatically without the need for any operation and the broadcast having been received is continuously received, and the driver is released from a troublesome operation and safe driving is attained.



## LEGAL STATUS

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[Date of requesting appeal against examiner's decision of rejection]

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## CLAIMS

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[Claim(s)]

[Claim 1] The broadcast receiving set characterized by the configuration which always sets up automatically the broadcasting frequency which can be equipped with a means input currency information, and the database, with which it corresponded for every broadcast area, and broadcasting frequency receivable in the broadcast area concerned was written in, and can receive it from the currency information inputted in the broadcast area concerned in the broadcast receiving set which receives the broadcast from which received frequency differs whenever areas (broadcast area) differ.

[Claim 2] The broadcast receiving set given in the 1st term of a claim characterized by using the GPS positioning equipment formed in the interior of equipment, or the equipment exterior for a means to input the above-mentioned currency information.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a broadcast receiving set and the channel selection technique of the broadcast receiving set accompanied by migration, such as a car radio, in more detail.

[0002]

[Description of the Prior Art] As everyone knows, radio and TV broadcast are using a frequency different, respectively the whole broadcast area, in order to avoid interference of an electric wave. For example, also in the 1st same broadcast of NHK, if broadcast area differs, received frequency differs. Therefore, whenever areas differ, in a car radio etc., it is necessary to operate a tuner and to change received frequency.

[0003] Moreover, there are a method with which the frequency of broadcast receivable by choosing and setting the area in which a current one is present by the area setup key as one of them although various kinds of channel tuning systems are developed since actuation of this tuner is troublesome is set up, and a channel tuning system which sets that frequency and goes by pushing an auto presetting carbon button whenever broadcast is received since the broadcast in which sequential reception is possible is received.

[0004]

[Problem(s) to be Solved by the Invention] Each channel tuning system of the above conventional broadcast receiving sets needed to be set having checked the display, performing button grabbing or checking the broadcast with a lug, and had the trouble that risk followed, in actuation while the actuation is troublesome and operates.

[0005] When it is made in order that this invention may solve this trouble, and received frequency changes with migration, it aims at offering the broadcast receiving set which presets the broadcasting frequency in the present broadcast area automatically, without being accompanied also by actuation of what.

[0006]

[Means for Solving the Problem] The broadcast receiving set concerning this invention carries out the configuration which always sets up automatically the broadcasting frequency which can be equipped with a means input currency information, and the database, with which it corresponded for every broadcast area, and broadcasting frequency receivable in the broadcast area concerned was written in, and can receive them from the currency information inputted in the broadcast area concerned in the broadcast receiving set which receives the broadcast from which received frequency differs whenever areas (broadcast area) differ as the description.

[0007] Moreover, it is characterized by using the GPS positioning equipment formed in the interior of equipment, or the equipment exterior for a means to input the above-mentioned currency information. Therefore, even when received frequency changes with transit with a car radio etc., the equipment which can preset the broadcasting frequency in the present broadcast area automatically, without being accompanied also by actuation of what is obtained.

[0008]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained using a drawing. Drawing 1 is a block which shows 1 operation gestalt of the broadcast receiving set of this invention, in drawing, 100 shows the whole broadcast receiving set, such as a car radio, and, for 1, as for the received frequency automatic setting section and 3, a broadcast receive section and 2 are [ a database and 4 ] currency information (positioning information) input terminals. Moreover, 200 is a GPS receiver by which existing is carried out to the vehicle connected to the positioning information input terminal 4.

[0009] Next, actuation is explained. From GPS receiver 200 by which existing was carried out, it is inputted into a vehicle through an input terminal 4 at the received frequency automatic setting section 2 as information whose currency information is the LAT and LONG. And an input of the information on the LAT and LONG searches a database 3 with this received frequency automatic setting section 2 by

making information on this LAT and LONG into the address. As shown in a database 3 at drawing 2 , a receivable frequency corresponds, and is written in in the area determined by the LAT and LONG, and the written-in frequency is set as the received frequency automatic setting section 2. And the broadcasting frequency of the tuned-in broadcast is set as the broadcast receive section 1. Even when it moves to other broadcast area from the broadcast area during transit of a vehicle, therefore, in the frequency by which could preset the broadcasting frequency in the present area automatically, without being accompanied also by actuation of what, and presetting was carried out By considering as the configuration which carries out the automatic channel selection of the frequency corresponding to the received frequency (this chooses a frequency by making the same broadcasting station of drawing 2 into the address), the received broadcast is continued as it is and it can receive now.

[0010] In addition, although GPS receiver 200 considered as the configuration using an external GPS receiver (existing was carried out to the vehicle) with the above-mentioned operation gestalt, it is good also as equipment in which a GPS receiver is also made to build. In this case, it is possible like a GPS receiver with automatic channel selection radio to become equipment with which the activity of a GPS receiver serves as a subject. Moreover, even if it is not a GPS receiver, it is good also as a configuration using the positioning information by other satellite navigation systems or self-contained navigation systems. Although the further above-mentioned operation gestalt explained the car radio, it cannot be overemphasized that Car TV can be carried out similarly.

[0011]

[Effect of the Invention] Since the broadcast receiving set of this invention considered as the configuration which always sets up automatically the broadcasting frequency which can be equipped with a means input currency information, and the database, with which it corresponded for every broadcast area, and broadcasting frequency receivable in the broadcast area concerned was written in, and can receive them from the currency information inputted in the broadcast area concerned as having explained above, when using it, for example as a car radio, an operator releases from troublesome actuation and effectiveness, such as becoming that safe transit is possible, is.

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## TECHNICAL FIELD

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[Field of the Invention] This invention relates to a broadcast receiving set and the channel selection technique of the broadcast receiving set accompanied by migration, such as a car radio, in more detail.

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**PRIOR ART**

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## EFFECT OF THE INVENTION

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] Each channel tuning system of the above conventional broadcast receiving sets needed to be set having checked the display, performing button grabbing or checking the broadcast with a lug, and had the trouble that risk followed, in actuation while the actuation is troublesome and operates.

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MEANS

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[Means for Solving the Problem] The broadcast receiving set concerning this invention carries out the configuration which always sets up automatically the broadcasting frequency which can be equipped with a means input currency information, and the database, with which it corresponded for every broadcast area, and broadcasting frequency receivable in the broadcast area concerned was written in, and can receive them from the currency information inputted in the broadcast area concerned in the broadcast receiving set which receives the broadcast from which received frequency differs whenever areas (broadcast area) differ as the description.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing 1 operation gestalt of the broadcast receiving set of this invention.

[Drawing 2] It is drawing for explaining the content of the database shown in drawing 1 .

[Description of Notations]

1 Broadcast Receive Section

2 Received Frequency Automatic Setting Section

3 Database

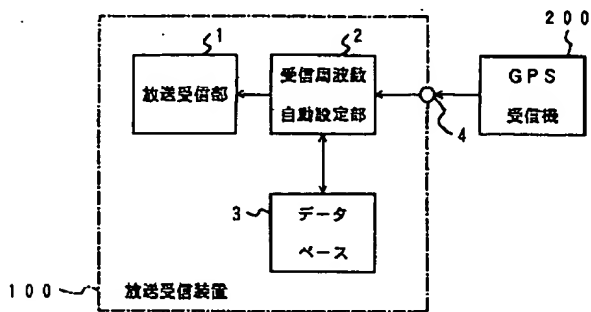
4 Currency Information (Positioning Information) Input Terminal

100 Broadcast Receiving Set

200 GPS Receiver

## DRAWINGS

[Drawing 1]



[Drawing 2]

エリア	緯 度	経 度	放送局	周波数
札 幌	N42°55'~N43°15'	E141°15'~E142°50'	AIR-G	80.4MHz
・	・	・	NORTH WAVE	82.5MHz
・	・	・	・	・
・	・	・	・	・
・	・	・	・	・
東 京	N35°25'~N35°50'	E139°15'~E140°05'	bay-fm	78.0MHz
・	・	・	FM富士	78.6MHz
・	・	・	・	・
・	・	・	・	・
・	・	・	・	・

**DERWENT-ACC-NO: 1998-373516**

**DERWENT-WEEK: 199832**

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**TITLE: Broadcast reception apparatus - has  
automatic frequency  
setting unit which sets broadcast  
frequency of particular  
broadcast area based on input position  
data**

**PATENT-ASSIGNEE: JAPAN RADIO CO LTD[NIUR]**

**PRIORITY-DATA: 1996JP-0318511 (November 15, 1996)**

**PATENT-FAMILY:**

<b>PUB-NO</b>	<b>PUB-DATE</b>	<b>LANGUAGE</b>
<b>PAGES MAIN-IPC</b>		
<b>JP 10150374 A</b>	<b>June 2, 1998</b>	<b>N/A</b>
<b>003 H04B 001/06</b>		

**APPLICATION-DATA:**

<b>PUB-NO</b>	<b>APPL-DESCRIPTOR</b>	<b>APPL-NO</b>
<b>APPL-DATE</b>		
<b>JP 10150374A</b>	<b>N/A</b>	<b>1996JP-0318511</b>
<b>November 15, 1996</b>		

**INT-CL (IPC): H04B001/06, H04B001/16**

**ABSTRACTED-PUB-NO: JP 10150374A**

**BASIC-ABSTRACT:**

**The apparatus includes a GPS receiver (200) which inputs present position data.**

**A database (3) stores the broadcast frequency corresponding to every broadcast area.**

**An automatic frequency setting unit (2) sets the broadcast frequency of the particular area, based on the position data.**

**ADVANTAGE - Enables safe transit since tuning of frequency by driver is eliminated.**

**CHOSEN-DRAWING: Dwg.1/2**

**DERWENT-CLASS: W03 W06**

**EPI-CODES: W03-B01B1E; W06-A03A5;**

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(12) 公開特許公報 (A)

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特開平10-150374

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(51) Int.Cl.<sup>6</sup>

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1/16

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1/16

Z  
G

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(22) 出願日 平成8年(1996)11月15日

(71) 出願人 000004330

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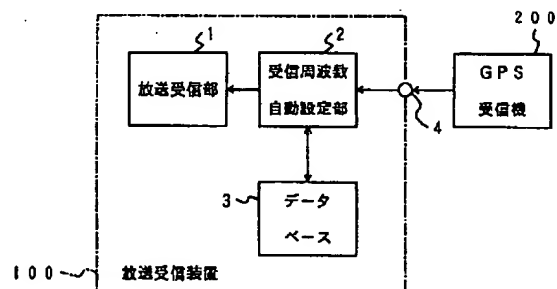
(74) 代理人 弁理士 高橋 友二 (外1名)

(54) 【発明の名称】 放送受信装置

(57) 【要約】

【課題】 従来のカーラジオ等は走行中放送エリアが異なると受信周波数を変更してプリセットする操作が必要であり、この操作が煩わしく危険が伴う。

【解決手段】 現在位置情報を入力する手段200と、各放送エリアごとに対応して当該放送エリアで受信可能な放送周波数が書き込まれたデータベース3とを備え、入力される現在位置情報から当該放送エリアで受信可能な放送周波数を常時自動的に設定する受信周波数自動設定部2とを備えた。



## 【特許請求の範囲】

【請求項1】 地域（放送エリア）が異なるごとに受信周波数が異なる放送を受信する放送受信装置において、現在位置情報を入力する手段と、各放送エリアごとに対応して当該放送エリアで受信可能な放送周波数が書き込まれたデータベースとを備え、  
入力される現在位置情報から当該放送エリアで受信可能な放送周波数を常時自動的に設定する構成を特徴とする放送受信装置。

【請求項2】 上記現在位置情報を入力する手段には、装置内部あるいは装置外部に設けられたGPS測位装置が用いられることを特徴とする請求項第1項記載の放送受信装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は放送受信装置、さらに詳しくはカーラジオ等、移動を伴う放送受信装置の選局技術に関する。

## 【0002】

【従来の技術】周知のようにラジオやTV放送は、電波の干渉をさけるために各放送エリアごと、それぞれ異なった周波数を使用している。例えば同じNHK第1放送でも、放送エリアが異なれば受信周波数が異なる。従ってカーラジオ等においては、地域が異なるごとにチューナを操作して受信周波数を変更する必要がある。

【0003】また、このチューナの操作が煩わしいために、各種の選局方式が開発されているが、その1つにエリア設定ボタンで現在自分のいるエリアを選択して設定することで、受信可能な放送の周波数が設定される方式や、オートプリセットボタンを押すことで、順次受信可能な放送が受信されるので、放送が受信されるごとにその周波数をセットして行く選局方式がある。

## 【0004】

【発明が解決しようとする課題】上述のような従来の放送受信装置の選局方式は、何れもボタン操作を行いながら表示を確認し、あるいはその放送を耳で確認しながらセットする必要があり、その操作が煩わしく、且つ運転しながらの操作では危険が伴うという問題点があった。

【0005】本発明はかかる問題点を解決するためになされたものであり、移動により受信周波数が異なった場合、何の操作も伴わずに現放送エリアでの放送周波数を自動的にプリセットする放送受信装置を提供することを目的としている。

## 【0006】

【課題を解決するための手段】本発明に係わる放送受信装置は、地域（放送エリア）が異なるごとに受信周波数が異なる放送を受信する放送受信装置において、現在位置情報を入力する手段と、各放送エリアごとに対応して当該放送エリアで受信可能な放送周波数が書き込まれたデータベースとを備え、入力される現在位置情報から当

該放送エリアで受信可能な放送周波数を常時自動的に設定する構成を特徴とする。

【0007】また、上記現在位置情報を入力する手段には、装置内部あるいは装置外部に設けられたGPS測位装置が用いられることを特徴とする。従って、カーラジオ等で走行により受信周波数が異なった場合でも、何の操作も伴わずに現放送エリアでの放送周波数を自動的にプリセットできる装置が得られる。

## 【0008】

10 【発明の実施の形態】以下、本発明の実施形態を図面を用いて説明する。図1は本発明の放送受信装置の一実施形態を示すブロックであり、図において、100はカーラジオ等の放送受信装置全体を示し、1は放送受信部、2は受信周波数自動設定部、3はデータベース、4は現在位置情報（測位情報）入力端子である。また、200は測位情報入力端子4に接続された車に既設されているGPS受信機である。

【0009】次に動作について説明する。車に既設されたGPS受信機200からは現在位置情報が緯度、経度の情報として入力端子4を介して受信周波数自動設定部2に入力される。そしてこの受信周波数自動設定部2では、緯度、経度の情報が入力されると、この緯度、経度の情報をアドレスとしてデータベース3を検索する。データベース3には図2に示すように、緯度、経度により決定されるエリアで、受信可能な周波数が対応して書き込まれており、書き込まれた周波数が受信周波数自動設定部2に設定される。そして選局されている放送の放送周波数が放送受信部1に設定される。従って車の走行中にある放送エリアから他の放送エリアに移動した場合でも、何の操作も伴わずに現エリアでの放送周波数を自動的にプリセットでき、且つプリセットされた周波数の中で、受信していた周波数に対応する周波数を自動選局する（これは図2の同じ放送局をアドレスとして周波数を選択する）構成とすることにより、受信していた放送をそのまま継続して受信できるようになる。

【0010】なお上記実施形態では、GPS受信機200は外部の（車に既設された）GPS受信機を利用する構成としたが、GPS受信機も内蔵させる装置としても良い。この場合、例えば自動選局ラジオ付きGPS受信機のように、GPS受信機の使用が主体となる装置となることが考えられる。またGPS受信機でなくても他の衛星航法システムあるいは自立航法システムによる測位情報を用いる構成としても良い。さらに上述の実施形態では、カーラジオについて説明したが、カーTV等でも同様に実施できることは言うまでもない。

## 【0011】

【発明の効果】以上説明したように本発明の放送受信装置は、現在位置情報を入力する手段と、各放送エリアごとに対応して当該放送エリアで受信可能な放送周波数が書き込まれたデータベースとを備え、入力される現在位



置情報から当該放送エリアで受信可能な放送周波数を常時自動的に設定する構成としたので、例えばカーラジオとして使用する場合、煩わしい操作から運転者を解放し、安全な走行が可能となる等の効果がある。

【図面の簡単な説明】

【図1】本発明の放送受信装置の一実施形態を示すブロック図である。

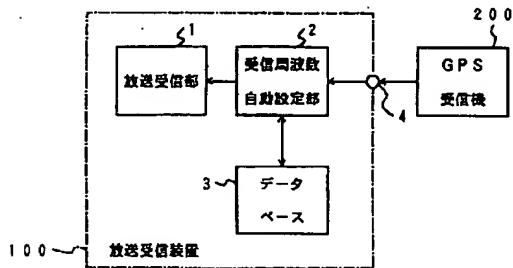
【図2】図1に示すデータベースの内容を説明するため

の図である。

【符号の説明】

- 1 放送受信部
- 2 受信周波数自動設定部
- 3 データベース
- 4 現在位置情報（測位情報）入力端子
- 100 放送受信装置
- 200 GPS受信機

【図1】



【図2】

エリア	緯度	経度	放送局	周波数
札幌	N42°55'~N43°15'	E141°15'~E142°50'	AIR-G	80.4MHz
・	・	・	NORTH WAVE	82.5MHz
・	・	・	・	・
・	・	・	・	・
・	・	・	・	・
東京	N35°25'~N35°50'	E139°15'~E140°05'	bay-fm	78.0MHz
・	・	・	F M富士	78.6MHz
・	・	・	・	・
・	・	・	・	・
・	・	・	・	・